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**“Unravelling the Attitude-Behaviour Gap Paradox for Sustainable Food Consumption:
Insight from the UK Apple Market”**

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Unravelling the Attitude-Behaviour Gap Paradox for Sustainable Food Consumption: Insight from the UK Apple Market

ABSTRACT

The remarkable progress made by the sustainable food industry as compared to the persistent small market share it holds, presents attitude-behaviour gap paradox which existing research is yet to address. The paper attempts to resolve this conundrum by addressing two key research objectives: Firstly, we draw on Campbell's paradigm to develop a sustainable product purchase behaviour model by conceptualising and measuring behavioural difficulties in terms of behavioural inhibitors/promoters, which includes Past Purchase, Premium Pricing, and Product Availability and Product Variety barriers. Further to this, we establish the exact role of purchase behavioural inhibitors/promoters from the point of view of Campbell's paradigm. This is achieved through analyses of actual behaviour data consisting of loyalty card data in the UK with a sample size of 1.8 million customers and supermarket shopper till receipt data in the UK. Evidence from the study established the existence of a sustainable product purchase inhibitor and promoter typology, which are critical to sustainable food purchase behaviour, but their degree of influence differ significantly. Our study subsequently, validates the Campbell's paradigm theory since we were able to establish using the actual purchase behaviour data that indeed, the purchase inhibitors are what causes the so-called gap between claimed purchase behaviour and actual purchase behaviour. The study further highlights theoretical and managerial implications of the findings.

Keyword: Sustainable Purchase Behaviour, Attitude-Behaviour Gap, Campbell's Paradigm, Purchase Barrier/Promoter Typology.

1. INTRODUCTION

Over the past three decades sustainable food industry has made remarkable progress but its market share remains small compared to conventional alternative (Chekima et al, 2017; UNEP 2013; Zwick and Neville 2015; Carrington, Clark 2007,). This presents a paradox that has engaged the attention of sustainable food researchers and practitioners (Berns et al. 2009; Lorek and Fuchs, 2013; Lubin and Esty 2010; Loorbach and Wijsman 2013). Sustainable food products are 'products that contribute – through their attributes and consequences – to one or a combination of economic, ecological and social aspects' (Reheul et al., 2001). Accordingly, Vermeir and Verbeke,

(2006 p. 169-170) indicates that: 1) The economic dimension refers to ‘a fair price for the producers and affordable consumer prices; 2) The ecological component involves caring for the natural environment and livestock production conditions, the living environment in general, and the quality of life for humans, and 3) The social aspect concerns an integration of agriculture in the priorities and needs of the society/citizens and an appreciation and support for the agro-food sector from the society as well as from government’s sustainability- supporting policy’. Despite the huge prospects of engendering the wellbeing of society, the sustainable food industry has not grown in terms of market share as envisaged.

Attempts to resolve this paradox has given rise to an intriguing trend towards the use of attitude-behaviour gap as a key research justification; see some typical recent examples (Jacobs et al, 2018; Cotton et al., 2016; Terlau and Hirsch, 2015; Harvey and Hubbard; Alphonse et al., 2014; Fraj and Martinez, 2007). Another common feature of sustainable purchase research is the strong inclination towards the traditional attitude research approach (Czellar, 2003, Padel and Foster, 2005) which is massively susceptible to social desirability effects (Chatzidakis et al., 2007, Doran, 2009, Lee and Sargeant, 2011). Curiously, studies following the alternative approach towards the engagement in attitude-relevant practice is rather scares (Byrka and Kaiser, 2013) and getting less research attention. Meanwhile, research has shown that the purported connection between general attitude and behaviour, particularly in the context of sustainable purchase behaviour is error prone and complex (Ajzen and Fishbein, 2005). Thus, focussing research attention on a phenomenon that is inherently subjective does not hold a good prospect for the promotion of sustainable purchase behaviour.

Contrary, this paper challenges the continuous research focus on traditional attitude research approach predicated on attitude-behaviour gap justification whilst disregarding other sound conceptual alternatives like Campbell’s paradigm proposed over 50 years ago. Campbell posits that ‘the root of the seeming inconsistency between attitudes and behaviour lies in the disregard of behavioural costs’ in attitude research’ (Kaiser et al., 2010 p.351). This paper argues for a revisit to Campbell’s paradigm to reposition behavioural difficulties at the centre of sustainable food purchase behaviour research.

Specific purchase barriers identified in the literature includes knowledge and awareness challenge, product availability barrier, product access difficulties or inconvenience, limited product range or lack of variety, lack of trust for sustainable product information, past purchases, poor product quality, inferior product taste and premium pricing (Schäufele and Hamm, 2017; van Doorn and Verhoef, 2015; Gleim et al. 2013; Bezawada and Pauwels 2013; Dean et al., 2012). For instance, in

a study across five European countries, Tranter et al (2009) found that trust and certification accounted for 50% of barriers hindering consumers to convert to organic grade food products. Existing research is dominated by fragmented single barrier factor investigations (van Doorn and Verhoef, 2015). To date, this is the first study to examine collectively, the influence of selected behavioural difficulties variables (past purchase, price, product availability and variety) on consumer purchase behaviour.

Majority of sustainable food purchase research utilised claimed/reported information or surveys with limited sample sizes (Kaljonen et al. 2019; Basha and Lal, 2018; Memery et al., 2015; van Doorn and Verhoef, 2011, Kemp et al., 2010). Such primary sources of data are further prone to social desirability bias (Nancarrow et al., 2001, Chatzidakis et al., 2007, Doran, 2009). We therefore contend that given the complex nature of consumer behaviour (Taufique and Vaithianathan, 2018; Visser et al., 2018), analysis based on such limited datasets that seek to explore behavioural difficulties can be inherently flawed. In view of such a methodological weakness, we take a cue from the Campbell's paradigm and draw on the analysis of loyalty card data in the UK with a sample size of 1.8 million customers and supermarket shopper till receipt data in the UK to assess collectively the role of past purchase, premium pricing, product availability and variety – all objectively measured factors on purchasing behaviour of sustainable food products. The current research is distinct as it adopts a novel and systematic combination of loyalty card behaviour data and supermarket till receipt collection analysis to understand the collective as well as the single influence of the selected factors on sustainable food product purchase at both aggregated and disaggregated levels.

In our opinion, this represents a comprehensive research on sustainable food purchase behaviour because it eliminates social desirability bias (Drichoutis et al., 2016) and hypocrisy (Kaiser and Byrka, 2015). Hence, the first objective of the study is to draw on Campbell's paradigm to develop a sustainable product purchase behaviour model by conceptualising and measuring behavioural difficulties in terms of Past Purchase, Premium Pricing, and Product Availability and Product Variety barriers. This is necessitated by the fact that existing research has not factored in behavioural inhibitors, which is investigated based on actual behaviour data in an attempt to validate the Campbell's paradigm theory. This represents a major research gap in the area of sustainable consumption purchase behaviour; see for instance Jacobs et al (2018); Taufique and Vaithianathan (2018), Visser et al (2018). The study adopts Retail Sales Value of sustainable apples as the model output. Sustainable apples refer to apple varieties that contribute through their attributes and consequences to ecological benefit, per the definition of Reheul et al., (2001) cited

earlier. Thus, the production systems that are followed in producing these apples factor into their processes and practices caring for the natural environment.

The second objective is to provide both theoretical and empirical insights into the respective roles that the identified purchase inhibitors/promoters: Past Purchase, Premium Pricing, Product Availability and Product play in sustainable product purchase. These are captured in the following research questions: 1) How does past purchase of sustainable food products influence future purchase behaviour? 2) Does premium price inhibit sustainable food product purchase? 3) What role does sustainable food product availability play in customer purchase decision making? and 4) Is product variety an inhibiting or promoting factor in sustainable food purchase? The second research gap being filled by the study is due to the lack of studies on the exact role of purchase behavioural inhibitors from the point of view of Campbell's paradigm (Kaiser et al, 2010), which posits that there is the need to factor in behavioural inhibitors in sustainable products purchase research (van Doorn and Verhoef, 2015; Schäufler and Hamm, 2017). Answering these research objectives therefore addresses this research gap since these research objectives serves as a novel attempt to draw on Campbell's paradigm to reposition behaviour difficulties within sustainable purchase behaviour research as opposed to the emerging trend of seeking a resolution to sustainable food marketing paradox with attitude-behaviour gap as a panacea. We adopt a regression model to measure the joint or single contribution of inhibitors or promoters to sustainable product purchase behaviour (Total Sales Value).

Thus, we propose that under conditions devoid of social desirability bias, accounting for barriers/promoters to purchase reflects a significant influence on purchase behaviour of sustainable products. We further question research conclusions drawn on the basis of exclusive claimed or reported data within the context of sustainable food purchase behaviour. We further question the exclusive theoretical alternative position taken by Forbes et al., (2009) and Niinimäki, (2010) and propose that both theoretical and methodological solutions based on a combination of the analysis of actual behaviour data and till receipt collection dataset, hold better prospects for understanding barriers to sustainable purchase behaviour. Insights emanating from such analysis will enable sustainable food industry stakeholders resolve the current challenge of bridging the gap between industry progress and its prevailing small market share.

The paper reports that past purchase, premium pricing, product availability in stores and product variety individually and collectively serves as significant inhibitors or enablers to sustainable purchase behaviour. The findings of the study provide ample grounds to question the basis for the continuous use of attitude-behaviour gap as a predominant justification for sustainable purchase

behaviour research. Indeed, such credible alternative position underpinned by Campbell's paradigm has been articulated in different contexts by earlier studies; (Wicker, 1969, Dawes and Smith, 1985, Kaiser and Byrka, 2011). However, they appear not to be in sync with current sustainable food purchase behaviour discourse. It follows that whereas attitude-behaviour gap exists as people often say one thing and do another, favourable consumer attitude towards sustainable products have been hugely exaggerated as a result of drawing conclusions based on claimed or reported data without recourse to behavioural difficulties.

Our study therefore validates the Campbell's paradigm theory, which posits that the reason why attitudes-behaviour gap exist is because of inhibiting factors such as premium pricing, product availability and variety. We therefore suggest that research efforts at closing attitude-behaviour gap should move away from consumer perceptions, which has persisted in the literature to studies that seek to overcome actual behavioural inhibitors, such as the ones we identified in this study. In the light of these findings, we suggests that managers' tasked with promoting sustainable products should go beyond the status quo of marketing communication strategies, which are based on promoting a wider appeal and also highlight behavioural inhibitors because it is these behavioural inhibitors that cause the attitude behaviour gap. As a practical recommendation, we suggests that when managers promote sustainable products, they should pre-empt consumers about the need for them to individually overcome their behavioural inhibitors so that they can take advantage of the full value to be gained from consuming sustainable products.

In order to achieve these developments, the rest of the paper is structured as follows: Literature on Sustainable Purchase Behaviour and Barriers to Sustainable Food Purchase are reviewed in Section 2. These provide the context for the development of the theoretical model based on Campbell's paradigm in Section 3. This is followed by the Research Methodology in Section 4. Next, the study results and discussions based on the data analyses are fully detailed in Section 5 allowing for the concluding remarks in Section 6.

2. LITERATURE REVIEW

2.1 Sustainable Purchase Behaviour Research in Retrospect

Sustainable business development is a global issue that emphasises the need to ensure long term business success within the framework of sustainable economic, social and environmental development (Boons and Lüdeke-Freund, 2013). Encouraging the adoption of sustainable

business practices has gained recognition as a prime industry and research concern of the 21st century ((Loorbach and Wijsman, 2013, Berns et al., 2009, Lubin and Esty, 2010, Shepherd and Patzelt, 2011). Although, Corporate Social Responsibility (CSR) of businesses has been widely articulated by all sections of society as important to sustainable business development (Ailawadi et al., 2014, Acquaye et al., 2015), consumers are key stakeholders driving CSR (Bolton and Mattila, 2015) and sustainable production. They therefore play a central role in sustainable business development (OECD, 2008).

Despite this, studies on consumer behaviour towards sustainable products are relatively new and historically limited (Gleim et al., 2013, Strizhakova and Coulter, 2013, Sporleder et al., 2014). Shaw and Shui (2003) and Vermeir and Verbeke (2006) have both reported on the use of the consumer behaviour models as a conceptual framework to investigate consumer purchase behaviour towards sustainable food products. Research findings on consumer motivations and perceived barriers to buy sustainable products have been however characterised with disagreements and intellectual tensions (McEachern and McClean, 2002, Baker et al., 2004, Doran, 2009, Yamoah et al., 2014).

Recent sustainable purchase behaviour research has been characterised with attempts at closing attitude-behaviour gap through behaviour change (Mohr et al., 2001, Kollmuss and Agyeman, 2002, Ehrich and Irwin, 2005, Fraj and Martinez, 2007, Vermeir and Verbeke, 2006, Chatzidakis et al., 2007, Pickett-Baker and Ozaki, 2008, Aertsens et al., 2009, Doran, 2009, Gruber and Schlegelmilch, 2014, Terlau and Hirsch, 2015). As a result there are notable research approaches to find theoretical solutions to attitude-behaviour gap such as Chatzidakis et al., (2007) - neutralisation techniques; and Carrington et al., (2010) - actual behavioural control concepts. But the critical role of performance barriers, although not the central theme of such studies still prevails as evident in recent studies such as (Bezawada and Pauwels, 2013).

For instance, Verbeke and Vermeir (2006) and Ngobo (2011) found contrasting findings regarding sustainable product availability as a major barrier to purchases. Also, van Doorn and Verhoef (2011) and Bezawada and Pauwels (2013) emphasised the significant role of premium pricing as a barrier to sustainable product purchasing behaviour. Surprisingly, accounting for performance difficulty factors have not been an integral part of recent studies to unravel why sustainable food market remain small and claimed preferences rarely translates into actual purchase behaviour. Indeed, research focusing on the inconsistency between verbal evaluations and behavioural performances predominate the extant literature; see (Shaw and Shiu, 2003, Ozcaglar-Toulouse et al., 2006, Carrington et al., 2010) as opposed to assessing relative difficulties or barriers to purchase behaviour, which underlines Campbell's paradigm. A typical example is the study conducted by

van Doorn and Verhoef (2015). Although this study acknowledged behavioural costs of purchasing organic products such as difficulties in obtaining the products, high prices and other specific quality risks (Gleim et al., 2013, Bezawada and Pauwels, 2013), it failed to specifically assess the role behavioural costs play in sustainable purchase behaviour. Rather, the study relied on the implicit influence of other observed constructs such as health motivation on behavioural costs. Indeed, van Doorn and Verhoef, (2015) underscores researchers' inability to measure the effects of purchase barriers such premium price, product variety, quality issues and availability with regards to the drivers and barriers to organic purchase behaviour satisfactorily.

Sustainable food marketing and consumer purchase behaviour research have long recognised the importance of behavioural difficulties associated with sustainable purchase but there seem to be a paucity of research in this area as recounted in the case of van Doorn and Verhoef (2015). Recent sustainable studies focusses more on resolving attitude-behaviour gap conundrum (Chatzidakis et al., 2007 and Carrington et al., 2010) rather than examining theoretical and methodological issues related to accounting collectively for behavioural difficulties.

Currently there are no published studies that account for the collective role of purchase barriers as proposed by Campbell (1963) in the purchase decision of sustainable products based on a combination of actual consumer behaviour and supermarket till receipts data. We argue therefore that investigating purchase barrier exemplars with actual supermarket data and till receipt collection, offers a credible basis for a robust analysis on the subject. In our opinion, this will be a major step towards seeking understanding of a 'forgotten' research issue that still militates against contemporary efforts at promoting sustainable food product purchase.

3. THEORETICAL MODEL DEVELOPMENT

3.1 Campbell's Paradigm and Sustainable Purchase Behaviour

Understanding consumer behaviour in the realm of sustainability remains an unresolved paradox to both researchers and practitioners (Gruber et al., 2014). A major research focus to resolve this puzzle has centred on cognitive processes, behavioural control factors as well as enablers and moderators of attitude-behaviour gap (Kaiser et al., 2010). It does however appear researching the underlying cognitive processes has not provided the expected insights to promote growth in sustainable purchase as the sector remains a small share of the overall demand (UNEP, 2013, Carrington et al., 2015).

As academics and practitioners grapple with the lack of commensuration between industry progress and market share and seeks a resolution via attitude-behaviour research (Carrington et al., 2015), Campbell (1963) had earlier described attitude-behaviour gap as ‘empirical chimeras’. That is, an illusion that is impossible to achieve. Davies et al., (2002) also contends that using attitude-behaviour as a justification for psychological and marketing theorizing ought to be discarded. From Campbell’s perspective, the only causative factor to attitude-behaviour gap is the differential difficulties associated with such behaviour and hence regard it as a methodological rather than a theoretical challenge (Kaiser and Byrka, 2015).

Campbell proposed that an individual’s preference for an attitudinal item such as ‘environmental protection’ becomes evident in the face of escalating obstacles and difficulties (Campbell, 1963). Behavioural costs from Campbell’s perspective refer to the ‘situational threshold’ or the difficulty connected with behaviour performance (Campbell, 1963, p. 160). From such a viewpoint, Campbell opined that an individual’s attitude is determined exclusively with reference to ‘behavioural costs and their difficulty order’ (Kaiser et al., 2010, p. 352). The existing literature on the application of Campbell’s paradigm (see Kaiser et al., 2010 and Kaiser and Byrka, 2015) confirms that the degree of difficulty or obstacles that a consumer overcomes to undertake a given behaviour is a function of the individual’s commitment to the goals associated with the behaviour. Therefore, determining consumer attitude-relevant behaviour without recourse to associated barriers (difficulty order) related with the action is a major weakness in sustainable food marketing research. Kaiser and Byrka (2015) emphasised that an individual’s involvement in a given attitude-relevant behaviour is an indicator of a person’s general attitude. Specifically, the study found that people’s participation in attitude-relevant dietary practices was indicative of their environmental attitudes (Kaiser and Byrka, 2015). By inference, consumer engagement in sustainable food purchasing behaviour will connote their sustainability attitudes.

Campbell (1963) suggests a deterministic approach to predict factual engagement. But Kaiser et al., (2010) in contrast aimed to explain probability of engagement to make allowance for individual discretion in the context of behaviour. Contrary to Kaiser et al., (2010) and Kaiser and Byrka (2015) that questioned the deterministic proposition of Campbell, and also raised the issue of indeterminacy of sustainable behaviour, we follow Campbell’s paradigm and resolves the indeterminacy problem of behaviour by relying on a combination of actual behavioural data and till receipts collection to investigate the single and combined role of selected purchase barriers in sustainable purchase behaviour context.

Generally, consumers readily “indicate” (verbally) positive attitudes toward sustainability but they rarely factor it into their purchasing decisions (Mohr et al., 2001, Ehrich and Irwin, 2005, Gruber and Schlegelmilch, 2014). Similarly, De Pelsmacker et al., (2005) found a substantial number of surveys that showed that consumers value the ethical aspect in a product. However, they noted that consumers’ behaviour in the marketplace was not consistent with reported attitude toward products. Cowe and Williams (2000) found via consumer survey that about thirty percent 30% of the UK population were highly motivated to purchase fairtrade products. However, such products accounted for just one to three percent (1-3%) of the individual purchases. These survey findings raise ample grounds to be wary about how much premium can be placed on claimed and reported attitudes for marketing strategy and sustainability policies.

Kaiser et al., (2010) suggested that the lack of commitment to sustainable product purchases can arise out of the absence of purchase barrier considerations associated with behavioural performances at the time of soliciting consumer attitudes. They adopted Campbell’s paradigm which posits that ‘an individual’s involvement with a given behaviour is the ‘arithmetic difference’ between that person’s general attitude and the potential costs of the named behaviour under consideration. They therefore suggested that the paradox surrounding sustainable purchasing behaviour is more of a methodological rather than a theoretical problem.

The position taken by Kaiser et al. (2010) is however at variance with the direction taken by other sustainable product researchers such as Chatzidakis et al., (2007) and Carrington et al., (2010). Whereas, Chatzidakis et al. (2007) suggested that the less patronage of sustainable products is entrenched by a set of rationalisations (neutralisation techniques) that ‘insulates’ non- sustainable purchasers from ‘self-blame’, Carrington et al., (2010) proposed that it was down to a chasm between consumer’s perceptions of control (PBC) and their actual control (ABC) at the time of purchase respectively. Therefore, Chatzidakis et al. (2007) and Carrington et al. (2010) both sort theoretical solution as opposed to a methodological approach by Kaiser et al., (2010).

Thus, the need to gain a better insight into the lack of substantial market growth in sustainable products at a time that consumers progressively indicate strong appreciation for sustainable principles (Kotler, 2011) cannot be overemphasised. But a more critical research challenge is to establish beyond routine surveys (which are susceptible to response bias), the key factors impeding sustainable product purchasing behaviour (Aertsens et al., 2009). Such a study has huge potential to focus the research on sustainable product decision making and redirect academic discourse on sustainable business development from a marketing perspective. Hence, this study seeks to utilise

Campbell's paradigm as a conceptual alternative for sustainable food marketing research as presented as Figure 1.

The model is developed on the premise that examining general sustainable attitudes without accounting for purchase barriers results in subjective outcomes. Therefore, drawing on Campbell's paradigm in developing the conceptual model does not leave room for hypocrisy and social desirability effects (Kaiser and Byrka, 2015). Figure 1 shows the combined as well as single relationship between performance factors (barriers/enablers) such as past purchase, premium price, product availability and product variety and sustainable food purchase behaviour with consequential insight critical for the development of sustainable food product marketing strategy.

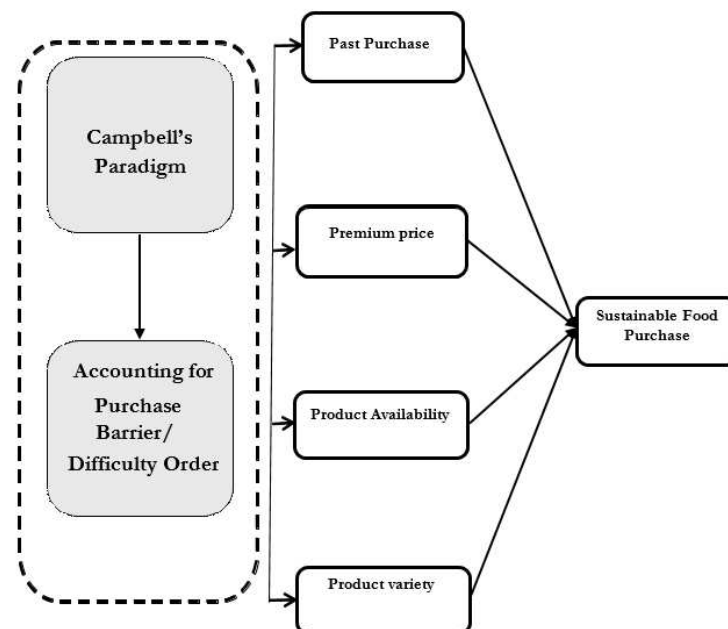


Figure 1: Conceptual Model of Barriers to Sustainable Food Purchase Behaviour from a Campbell's Paradigm Perspective

3.2 Model Variables:

3.2.1 Dependent Variable: Retail Sales Value

In line with previous research that has sought to understand the critical factors that inhibit or promote purchase behaviour, retail sales values of sustainable apples was adopted as the output of the model (Felgate and Fearne, 2015, Yamoah et al., 2014, Felgate et al., 2012). This represents the sales value per store for the sustainable apples sub-group. In the context of sustainable product

purchase behaviour, it envisaged that a customer whose decision making towards sustainable products is significantly affected by either past purchase, premium pricing, product availability and variety or a combination of two or more of these factors will be less likely to purchase a given sustainable food product, implying less retail value records. Thus, the degree of behavioural difficulty emanating from these factors selected as independent variables capture customers' sustainable product purchase behaviour.

3.2.2 Independent Variables as Constituent Barriers to Sustainable Food Purchase

The extant literature reveals a variety of purchase barriers influencing sustainable food product purchase. A growing body of knowledge on identifiable potential purchase barriers to sustainable food purchase behaviour points barriers such as knowledge and awareness of sustainable products (Dickson, 2001, Klöckner and Ohms, 2009), trust for sustainable product information (Lea and Worsley, 2005 and Verbeke and Ward, 2004) and perception of premium price (De Pelsmacker et al., 2003 and Klöckner and Ohms, 2009); product quality (McEachern and McClean, 2002 and Migistris and Gracia, 2008) and sustainable product taste (McEachern and McClean, 2002, Hughner et al., 2007) as well as contextual aspects like product availability (Dickson, 2001, Vannoppen et al., 2002, Chryssohoidis and Krystallis, 2005), variety and access/convenience (De Pelsmacker et al., 2003).

The framework therefore draws on the exiting literature and a consideration for the availability of a corresponding actual behaviour data in the selection of past purchase, premium pricing, product availability and variety as purchase barriers to influence sustainable product purchase (Robinson and Smith, 2002, De Pelsmacker et al., 2003).

Past behaviour is commonly measured as past purchase and it has received research attention from a general purchase behaviour context (Smith et al., 2007) as well as sustainable behaviour (Dean et al., 2012 and Vassallo et al., 2016), as a critical factor that influences intention and future purchase behaviour. The common rational underpinning these studies is that 'repeated performance' of a given behaviour shifts such decision-making activity away from the control of 'conscious processes' and become 'automatic processes' that takes place as a response to a particular signal (see, Dean et al., 2012, p. 7). It is worth noting that that all these studies including most recent studies such as Vassallo et al., (2016) used self-reporting respondents to collect data on sustainable food products purchasing behaviour. The current study however employed past actual supermarket purchase data.

Premium pricing has been adjudged as one of the most important barriers to sustainable food products purchase as it is perceived as being too high (Dholakia and Shukul, 2012, De Pelsmacker et al., 2003, Hughner et al., 2007, Nilsson, 2011, Robertsson, 2011). Indeed, in the absence of significant value addition price increases normally results in decreasing retail sales value. This assertion was however not based on comparative investigations of all other identified factors, be they personal, product-related or contextual. On the contrary, another strand literature suggests that there is a consumer segment that buys sustainable food products because they are willing to pay a premium price (Singh and Verma, 2015, Aertsens et al., 2011).

Contextual factors such as **availability and range/variety** of sustainable food products on the market also inhibits purchase behaviour (Dickson, 2001). The availability of sustainable products has been found to be one key challenge confronting retailers and consumers (Aertsens et al., 2009, Grimmer et al., 2015, Chkanikova and Mont, 2015). Fairtrade coffee and sustainably certified farmed salmon are specific examples of sustainable products that suffer periodic shortages by some retailers in Britain and Sweden respectively (Domej, 2011 and Nilsson, 2011). It has also been suggested that efforts at promoting sustainable product purchases ought to go beyond increasing consumer awareness to a proactive approach of a continuous availability of sustainable products (Chkanikova and Mont, 2015).

In addition to availability, product variety has been reported as another challenge to consumer purchase decision making (Bunte et al., 2007, Buder et al., 2014). The overarching evidence is that increasing the range/variety of sustainable food products will increase retail sales value as it is one best means to match target market demand and improve visibility of sustainable food product category.

3.2.3 Research Questions

The extant literature has consistently confirmed that past purchase, premium pricing, product availability and variety, among other factors are key determinants of sustainable food purchase. Sustainable products are fairly well distributed in the UK market as they are sold by all leading retail supermarkets (Flanagan and Weatherall, 2013). The market for sustainable products in the UK has grown in retail sales volume and value over recent decades (Young et al., 2010). Judging by the motivation behind sustainable products purchases as portrayed by studies supporting the view that sustainable product shoppers are willing to pay premium price for them, there are ample grounds to expect sustainable products demand to be inelastic. By implication, past behaviour will

support future purchases and the lack of availability and variety will not impede purchase when it is on the market in a limited range. However, other equally emphatic research evidence coupled with the conundrum of a small market share of the sustainable food industry relative to overwhelming public awareness questions the ethical commitment viewpoint.

It is important to recount that these contrasting findings have been predominantly, if not fully, been based on reported or claimed customer behaviour. It is not obvious from the literature review that the relatively static growth being experienced by the sustainable food industry is a result of the effect of attitude-behaviour gap, and may after all be due to the persistent difficulty order associated with purchase behaviour emanating from factors such as price, availability/distribution and less variety. Thus, the current study seeks to resolve four main research questions based on the analyses of actual customer purchase behaviour data: 1) How does past purchase of sustainable food products influence future purchase behaviour 2) Does premium price inhibit sustainable food product purchase 3) What role does sustainable food product availability play in customer purchase decision making and 4) Is product variety an inhibiting or promoting factor in sustainable food purchase?

4. RESEARCH METHODOLOGY

4.1 Study Design

The objective of the study is to draw on Campbell's paradigm to account for behavioural difficulty by examining the role of past purchase, premium pricing, product availability and variety in purchase decision-making to gain a better insight into the purchasing behaviour of sustainable food customers. It is envisaged that using a combination of actual customer behaviour dataset and supermarket shopper till receipt data instead of claimed/reported data will provide a robust and objective insight to understand the market share status of the sustainable food industry. It also enables us to resolve the subjective nature of the research evidence that underlines attitude-behaviour gap conundrum associated with sustainable purchasing behaviour.

4.2 Actual Customer Behaviour Dataset

Data on retail value and volume of sustainable apple sales as well as their prices, varieties on sale in stores and the number of stores selling them for two consecutive years were obtained from a large supermarket chain in the UK. The data comprised of apples purchased from sustainable food categories consisting of two (2) varieties of organic gala apples, and one (1) variety each of Organic

Goodness, Braeburn, Organic British Apple and Orchard Selection apples during a 26-week period covering mid-March 2013 to mid-September 2014. This dataset was based on a 10 % sample of the retailer's 18 million loyalty card holders giving an actual data sample size of 1.8 million. Sustainable apples category was selected because it is categorised as a sustainable fast-moving consumer staple fruit which is available in most stores all year round. Apples sold loose were not included in the analysis as only the number of transactions, rather than the specific units purchased are captured. This makes the data on loose apples not comparable to the pre-packed apple sales volume data. On the whole, sales of loose fruits and vegetables are relatively low and constitute 18.5% of all fruit and vegetable transactions at the supermarket chain (Howard-Wilsher, 2016). Retail value and volume of sales data for the sustainable apple category was aggregated to the store level for supermarkets of the chain. Because the actual value and volume of retail sales for the sustainable apple category differed greatly amongst the stores selling them, a composite measure was employed – the value and volume of sales of the sustainable apple products as a percentage of the total value and volume retail sales for apple.

Felgate et al., (2015) employed similar dataset to investigate the effectiveness of beef promotions across consumer categories in the UK. Loyalty card data was also used by Garcia (2011) to profile fairtrade consumers as a means to examine information search and involvement in sustainable purchase decision process. Similarly, Howard-Wilsher et al., (2016) employed actual customer behaviour dataset to examine the association between weight status and sales of unhealthy foods.

The study undertook two levels of analyses with supermarket loyalty card data. Firstly, a year-on-year aggregated marketing performance analyses was done to understand the headline performance figures. Following this, the influence of sustainable purchase behaviour determinants was then examined.

4.2.2 Analysis 1: Year-on-Year Marketing Performance of Sustainable Apple Category

A year-on-year comparison was undertaken to gauge the headline trend of the sustainable apple marketing performance for general insight at a very aggregated level for the 1.8 million customers in the sample. Indicators compared were sales value, sales volume, price, stores selling as an indicator for distribution or product availability and sustainable apple varieties sold in the stores over the two-year period.

4.2.3 Analysis 2: The Influence of Sustainable Purchase Behaviour Determinants

Secondly, the study used multiple regressions to estimate the impact of Past purchase (retail sales volume), Premium pricing (price of the sustainable apples), Product availability (number of stores selling sustainable apples) and Product variety (varieties of sustainable apples on sale in stores). This technique enabled us to investigate the single as well as combined effects as opposed to previous studies that have looked at these marketing factors in isolation; see for instance Aguilar and Vlosky (2007), Ha-Brookshire and Norum (2011) and Roheim (2011) on retail sales value of sustainable apples.

Regression analysis techniques have been widely used in business and marketing research in general (Diamantopoulos and Siguaw, 2006, Hair, 2010) and sustainable product purchasing behaviour research in particular (see for instance: (Pickett-Baker and Ozaki, 2008, Shariff et al., 2012). Regression analysis is also well suited to the analysis of large samples of data such as loyalty card data (Felgate et al., 2012) and to appropriately evaluate the effects of numerous independent variables on a dependent factor.

4.3 Supermarket Shopper Till Receipt Data

As indicated earlier, a supermarket till receipt collection is conducted to understand customer purchase behaviour at the disaggregate level to either reinforce or contradict the results of the analyses based on a large aggregated loyalty card data. The use of archival data (supermarket till receipts) has featured in consumer behaviour research as a key data source that indicates shoppers' product choices, variety of products purchased or establishes differences between intention and actual purchasing behaviour (Burke et al., 1992; Mittal, 1994; Walters and Jamil, 2003; Soman, 2003 and Spanjaard et al., 2009). It is worth noting that this is the first study known to combine the analyses of actual data at both the aggregated and disaggregated levels to understand sustainable purchase behaviour.

Out of 964 potential participants nationwide, 372 respondents representing 38.5% response rate participated fully by providing supermarket food shopping till receipts for three months. The choice of the duration for till receipt collection followed standards examples in key consumer purchasing behaviour studies such as Spanjaard et al., (2009) and French et al., (2009) and French et al. (2010). Spanjaard et al., (2009) inspected shopping receipts collected over six weeks to infer shopper brand choice and behaviour. On the other hand, French et al., (2009) and French et al.

(2010) analysed till receipts collected over a four-week period to draw conclusions on household food purchasing behaviour.

The profile of participants of the till receipt collection by gender, age group and level of education is provided in Table 1. The spending expenditure captured by the till receipts on sustainable apples is presented in Table 2.

Table 1: Descriptive statistics of profile of respondents by key demographics

Variable	Frequency	%
Gender		
Male	146	39%
Female	226	61%
Age group		
Under 20 years	11	3%
21-30 years	67	18%
31-40 years	86	23%
41 – 50 years	71	19%
51 – 60 years	82	22%
61 – 70 years	48	12%
Over 70 years	7	2%
Education		
O' Level	52	14%
A' Level	75	20%
Technical/Trade Certificate	56	15%
Diploma	48	13%
University Degree	141	38%

Table 2: Average amount spent on sustainable apples from Till Receipt data

Amount (£)	Response	Percentage (%)
None (£0.00)	212	57%
Less than £2.00	99	27%
£2 - £5.00	49	12.8%
£5 - £10.00	7	1.9%
£10 - £20.00	5	1.3%
Over £20.00	0	0%
Total	372	100%

The till receipts data further showed that 47% (160 participants) of the final sample did purchase any sustainable apple over the period but 11% (41 participants) bought a sustainable apple every week.

4.6 Multiple Regression Model

4.6.1 Model 1: Supermarket Loyalty Card Data Analysis: Regression

To execute the multiple linear regression model, total sales value for sustainable apples was conceptualised as the dependant variable for the regression model (**TSV**). The assumptions underlying regression analysis, see Hair (2010) were adhered to in the applying of the regression analysis. Past purchase (**PP**), Average Price (**AP**), Product availability/Number of stores selling (**PA**) and Product variety (**PV**) were conceptualised as independent variables for the model. The equation below represents the model 1 used for the regression analysis:

$$TSV = \beta_0 + \beta_1 PP + \beta_2 AP + \beta_3 PA + \beta_4 PV + e$$

TSV The dependant variable (Total Sales Value) for sustainable apples for 26 weeks ending 30th September 2014

β_0 β_1 , β_2 , β_3 and β_4 Regression constants which are fixed unknown parameters

PP Past purchase (retail sales volume of sustainable apples purchased the same period of the previous year)

AP Average price per unit of product

PA The number of stores selling the product (product availability)

PV Variety of Sustainable Apples on sale in stores

e The error term of the model which encompass all immeasurable factors which may also be influencing sustainable products retail sales value aside the selected independent variables

The standardized beta coefficients in the regression output are presented alongside t-values and significant level, and discussed to indicate the relative contributions of the respective independent variables on sustainable apple retail sales value over the 26 weeks period. Following on from these, the next section presents and discusses year-on-year performance indicators and the multiple regression results.

5. RESULTS AND ANALYSIS

5.1 Year-on-Year Marketing Performance Indicators of Sustainable Apple Category

The results highlighting key Marketing Performance Variables representing the year-on-year change covering 26 weeks from Mid - April 2012 to Mid - September 2013 and Mid - April 2013 to Mid - September 2014 for 1.8 million supermarket shoppers are presented in Table 3.

Table 3: Year-On-Year Comparison of Marketing Performance Variables for sustainable Apples

Marketing Performance Indicator	Sales Value (% Change)	Sales Volume (% Change)	Price (Last Period)	Price (% Change)	Stores Selling/Product Availability (Last Period)	Stores Selling (% Change)	Product Variety (Last period)	Product Variety (% Change)
Apple	-6.17%	-7.24%	£1.68	1.15%	1,746	12.36%	2.0	50%

A comparative percentage change results of Sales Value, Sales Volume, Price, Stores Selling/availability and range of products/variety of sustainable apples are presented in Table 3. It highlights that between 2012/13 and 2013/14 sustainable apples recorded increase in distribution/product availability (stores selling), product variety, accompanied by price increase. However, the comparison revealed sales volume and value reduction. It can be argued that year-on-year increase in the average price (+1.15%), distribution of sustainable apples (+12.36%) and product variety (+50%) affected sales value negatively. In summary, increase in price, product variety and widened distribution of sustainable apple culminated in sales growth decline. The results seem to suggest that at the aggregated level improved availability by a massive 12.36% and an additional sustainable apple variety being sold in stores could not compensate for the effect of price increase by 1.15%. The results indicate a high price sensitivity of sustainable apple customers and a further evidence supporting the critical role of price in sustainable food product purchase behaviour. It must however be emphasised that there is a need for caution in interpreting highly aggregated data, which does at best provide pointers to the headline figures. Indeed, the aggregated data-sets do not always reflect the trends beneath the headline figures (Yamoah et al., 2014; Felgate and Fearne, 2015). Therefore, drawing exclusively on results based on the aggregated data without recourse to understanding the trends beneath the headline figures can be a risky marketing strategy.

5.2 Model 1: Regression Analysis Results on Supermarket Data

Following the regression analysis, the findings were used to address the four research questions of the study 1) How does past purchase of sustainable food products influence future purchase behaviour? 2) Does premium price inhibit sustainable food product purchase? 3) What role does sustainable food product availability play in customer purchase decision making? and 4) Is product variety an inhibiting or promoting factor in sustainable food purchase? The R-Square values presented in Tables 4 show that past purchase, price, product availability and product variety explained over 46% of the variability in the supermarket retail sales value of sustainable of sustainable apples.

Research Question 1: How does past purchase of sustainable food products influence future purchase behaviour?

The results show that past behaviour positively influence sustainable apple purchase behaviour to a significant extent. In comparative terms the results indicate it exerts the highest positive effect sustainable apple purchasing behaviour relative to product availability and variety.

Research Question 2: Does premium price inhibit sustainable food product purchase? The results further show that price has a negative influence on purchasing behaviour of sustainable apple shoppers. Indeed, the results indicates that out of the four-independent variables, price influence on sustainable apple purchase behaviour is the highest and acts counter in terms of direction to past purchase, product availability and variety.

Research Question 3: What role does sustainable food product availability play in customer purchase decision making? The results also indicate that the availability of sustainable apples in the stores positively influence purchase behaviour. The level of significance recorded is a further indication that product availability plays role in customer purchase decision making.

Research Question 4: Is product variety an inhibiting or promoting factor in sustainable food purchase? The results on product range or variety show that product variety has a positive but insignificant relationship with behaviour. Therefore, per the results in Table 4, there is no clear-cut basis to conclude or suggest that the range of sustainable apples (product variety) on the market inhibits or promotes purchasing behaviour. It is important to recall that the year-on-year disaggregated results presented in Table 3 shows 50% increase (that is another sustainable apple variety was added from the previous year). Thus, it can be suggested with a caveat – aggregated

data results, that purchase behaviour does not appear to have been influenced by increased number of sustainable apple varieties.

Overall, the results indicate that past behaviour, product availability and product variety positively influence sustainable apple purchase behaviour but to a different significant degree. Premium price on the other hand has a negative significant influence on sustainable apple purchase behaviour.

Judging from the significance levels of the accompanying T-values statistics, a typology of the four-factor purchase inhibitor/promoter reveals a descending order of premium price, followed by past purchase, product availability and then product variety. Thus, price that has a negative relationship with sustainable apple purchase behaviour exerts the most influence. An intriguing trend emanating from the results is that whereas price on one hand and past purchase and product availability factors significantly influenced sustainable apple purchase behaviour in opposite directions, product variety has a positive but insignificant relationship with behaviour. In view of the suggestion that the growth in ethical products sales (Carrigan and De Pelsmacker, 2009) has been driven by ethical consumers despite the recession (Karjalainen and Moxham, 2013), the significant reduction in the sustainable apple retail sales value that accompanied a price increase of 1.15% (see Table 3) over the period of the analysis provides grounds to question the driven purchase behaviour school of thought.

Till Receipts Results

Amount spent on sustainable apple per week from till receipt data presented as Table 2 shows that majority of participants (80%) spent less than £2.00 weekly. Heavy consumers of sustainable apples constituted just 1.3 % of the participants, who spent £10 - £20 weekly. Furthermore, cross shopping analysis was undertaken to capture how prevalent sustainable food product shopping cuts across the research sample. Findings based on the till receipts analysis demonstrate that cross-shopping purchasing patterns do not exist among sustainable apple shoppers in the UK. Indeed, the typical basket of shoppers as reflected on the till receipts showed that customers seldom bought a collection of sustainable products. Some participant rather bought conventional alternatives of sustainable.

Table 4: SPSS Regression output on Supermarket Customer data (2013-2014)

Sustainable Apples Purchase Behaviour: Model 1	
Purchase Barrier	Value of Sale model Standardized Beta Coefficient/T-value
Past Purchase	0.362 (1.057)**
Price	-0.397 (0.624)**
Product Availability	0.252 (1.763)**
Product Variety	0.068 (1.727)
Adjusted R-square	0.4014

Note: T-values in parenthesis; ** denotes significance at 1% level, * denotes significance at 5%.

5.3 Discussions

The results of the analyses have shown that factoring behavioural difficulties exemplars such as price, past purchase and product availability impacts on supermarket retail sales value of sustainable apples. Contrary, the influence of product variety on purchase behaviour was not substantial enough to be able to suggest that it is a key inhibitor/promoter of purchase behaviour of sustainable apple customers.

Past purchase proved to be a major promoter of sustainable apple purchase behaviour. Juxtaposing this finding on the extant literature reveals that it reinforces earlier findings such as (Robinson and Smith, 2002; Ajzen, 2011; Smith et al., 2007, Dean et al., 2012, Vassallo et al., 2016). However, this finding is unique in the sense that it is based on actual behaviour data. Hence, it contributes to the extant sustainable food literature by confirming earlier findings from studies that employed claimed or reported data and found past purchase behaviour impacts on sustainable food buying decision making. A finding based on actual behaviour data that confirms past studies based on reported behaviour that a key predictor of future food purchases is past purchases within the context of sustainable food buying behaviour is profound. It does not only emphasise the key of role of past purchases as a promoter of purchase behaviour but also provides a strong ground to suggest a rethink of the mainstreaming marketing strategy undertaken to shift sustainable food products from specialist and niche market into supermarkets.

The key stakeholders in the sustainable food industry would have us believe that the key driver to sustainable food retail sales growth is the increased level of awareness among the public and the growing importance of ethics in purchasing decisions. Therefore, pursuing a mainstreaming

strategy to achieve rapid growth in market share by placing sustainable food products in conventional markets was justified. Per the results of the current study that past purchase is one of the biggest predictors of future food purchases, it seems prudent to suggest on hindsight that the conundrum arising out of the remarkable progress made in terms of awareness of the essence of the sustainable food industry, as compared to the persistent small market share may not have occurred if it was still operating a niche marketing strategy. It is possible (if not likely) that the mainstreaming of sustainable food products in supermarkets has resulted in the introduction of new shopper segments with different values, who buy sustainable food products for different reasons from those who were responsible for the early development of the sustainable food market. Thus, focussing on every food shopper via mainstreaming instead food shoppers with past record of purchasing sustainable foods from niche marketing outlets may have been a wrong marketing strategy (see, Toften and Hammervoll, 2007). Evidence from a study on the role of personal values in the supermarket purchasing behaviour for fairtrade food products in the UK suggests that fairtrade purchase intention is driven by both societal as well as self-interest values (Yamoah et al., 2015). If these new shoppers have different values, then their needs may differ and their treatment by the manufacturers, retailers and marketers of sustainable food producers should differ too.

Despite some recent studies reporting the existence of a consumer segment that buys sustainable food products because they are willing to pay a premium price (Singh and Verma, 2015; Aertsens et al., 2011) the results of this study found price as an important inhibitor to sustainable apple purchase behaviour. It does support the traditional view that premium price associated with sustainable food products is perceived as being too high (Dholakia and Shukul, 2012, De Pelsmacker et al., 2003, Hughner et al., 2007, Nilsson, 2011, Robertsson, 2011). Premium price exhibits a negative relationship with sustainable apple purchase behaviour as opposed to the positive influence of past purchase and reinforces the findings of earlier studies on the negative effect of higher premium price tag (Smith, 2007) on purchase behaviour. Thus, in the context of sustainable apple purchase behaviour based on actual purchase behaviour, premium pricing can be described as a major inhibiting factor that require both research and food policy attention. Drawing on the extensive loyalty card data used for the analysis of this study, it appears the willing to pay a premium price for sustainable food products position exposed by Singh and Verma (2015) and Aertsens et al., (2011) is not prevalent feature of the UK food shopper. Therefore, relying on the ethical goodwill of customers to grapple with the higher sustainable food price will not promote the industry as envisaged. The persistent negative reaction to premium pricing can be

tackled either from: 1) a marketing strategy perspective or 2) a public food, health and environmental policy perspective.

Dovetailing sustainable food pricing strategy into the earlier argument on rethinking mainstreaming could help promote higher retail sales. Thus, the sustainable food industry refocusses attention on the niche markets patronised by customers with past purchase record and ready to pay a premium price. We ask, would it not be a better option for the sustainable food industry to try and find out those people who can afford to pay for what they care about and charge them more, rather than continuing mainstreaming and selling to everybody, adding to the market as many sustainable food products as possible, widening up the premium and raising prices? Conversely, sustainable food industry stakeholders could actively engage to develop a system where environmentally and ethically preferable food (at least for all major staples) would be promoted (see, Vinnari and Tapio, 2012) across the food value chain and the prevailing price premium between sustainable and conventional options serviced by government as subsidy. This could be one way of maintaining prices at a level where customers will have the incentive to buy more sustainable food products that promote better public health and consequently bring about government savings in health budget and environmental cost and ecological impact of unsustainable food industry practices.

The study also found sustainable apple availability impacts on purchase behaviour and this confirms earlier studies that attest to its influence on sustainable food product purchase (Dickson, 2001, Aertsens et al., 2009, Young et al. 2010, Domej, 2011, Nilsson, 2011, Flanagan and Weatherall 2013, Grimmer et al., 2015, Chkanikova and Mont, 2015). Similarly, the significant influence of product availability on purchase behaviour agrees with some fairtrade food studies that reported that fairtrade coffee in the UK and (Domej, 2011) and sustainably certified farmed salmon in Sweden (Nilsson, 2011) suffer periodic shortages by some retailers. This finding further supports the recommendation of Chkanikova and Mont (2015) on the need for sustainable food marketing managers to be proactive to ensure continuous availability of sustainable products on the market.

Another finding of the study was that the range and variety of sustainable apples was not a major factor influencing purchase behaviour contrary to earlier studies (Bunte et al., 2007, Buder et al., 2014) that found that product variety influences sustainable food purchase decision making. It is important to reiterate that the result indicated a positive direction of influence of sustainable apple variety on purchase behaviour but the degree of influence was not significant. Thus, a conclusive

position could not be taken. This implies that sustainable apple variety change over the period of the research by 50% (see Table 3) was not enough to influence purchase behaviour.

The results also revealed a clear basis for sustainable apple purchase inhibitor/promoter typology which places price, past purchase, product availability and product variety in distinctive classes in terms of the degree of their respective effects on purchase behaviour. The typology of sustainable food product purchase inhibitors/promoters based on degree of influence revealed through the results of the study in the descending order of premium price, past purchase, product availability and product variety (see Table 5) is novel and profound. Indeed, Randall and Sanjur (1981) earlier categorised the factors influencing general food preferences into the individual, the food, and the environment but this study extends the existing research understanding further to classify sustainable food purchase barriers based on their relative degree of influence on behaviour.

Table 5: Respective Purchase Barrier Contribution to Sustainable Apples Purchase Behaviour based on the results on Model 1

Model 1: Purchase Barrier Contribution to Sustainable Apples Purchase Behaviour	
Purchase Barrier	Contribution based on Regression Standardized Beta Coefficients
Past Purchase	0.362 (2 nd)**
Price	-0.397 (1 st)**
Product Availability	0.252 (3 rd)**
Product Variety	0.068 (4 th)
Adjusted R-square	0.4508

Drawing on Campbell's paradigm as an alternative conceptual framework by factoring behavioural difficulties using loyalty card and till receipt data to minimise subjectivity, provided a unique study context to research sustainable food purchase behaviour. This further addresses the existing limitation of the inability to measure objectively the effects of purchase drivers and barriers to sustainable food purchase behaviour satisfactorily (van Doorn and Verhoef, 2015). The research therefore advances a greater understanding on the applicability of Campbell's paradigm as an alternative conceptual paradigm to sustainable food marketing research.

A number of studies have attested to the role of the social desirability bias (Auger and Devinney, 2007, Carrigan and Attalla, 2001) and application of neutralisation techniques (Chatzidakis et al., 2007, Gruber and Schlegelmilch, 2014) in sustainable product purchasing behaviour. It is also common knowledge that environmental-friendly purchase is socially desirable behaviour. However, the findings of this study have shown ample insight to suggest that social desirability

effect is likely to be minimised if behavioural difficulties are fully accounted for in behaviour assessments for sustainable food products, particularly employing actual behaviour data. There is an ample ground to suggest that attitude-behaviour gap has become popular in sustainable purchase behaviour research as a result of relying on claimed/reported behaviour data that is susceptible to social desirability effects. Taken the veil off by using actual behaviour data demystifies attitude-behaviour gap, which has been used as a mask that confides behaviour difficulty order factors such as price, past purchase, product availability and variety to the fringes of sustainable food purchase behaviour research. Drawing on Campbell's paradigm ensures that a more realistic consumer behaviour for sustainable food products will be observed and utilised to explain why the market shares of sustainable products remain relatively small (Luchs et al., 2010). The findings of this study based on actual behavioural data shows there are fundamental challenges confronting sustainable product customers and the managers tasked with promotion of sustainable purchase. We suggest that the conundrum arising out of the remarkable progress made by the sustainable food industry in terms of public awareness as compared to the persistent small market share is a creation of the lack of studies that have used objective measures to assess sustainable food product purchase behaviour.

It can be deduced from the results that behaviour difficulty exemplars such as 1) price, 2) past purchase, product availability and product quality, could be viewed to act alongside social desirability effects and the use of neutralisation techniques to explain the lack of commitment to purchasing sustainable products. It is however important to reiterate that the role of social desirability and the application of neutralisation techniques have been based on the analysis of claimed attitudes, intentions and/or behaviours. Additionally, there is ample grounds to suggest that interventions proposed to overcome social desirability effects and neutralisation techniques do not appear to be working as the market share of sustainable products still remain relatively small (Luchs et al., 2010). Hence, there is a need to move away from reliance on subjective purchase behaviour measures to generate objective insight to propel sustainable food industry forward.

The results raise questions about methodological foundations supporting the ubiquitous attitude-behaviour gap in the face of actual purchase behaviour evidence. The findings of this study provide insight to the effect that consumers of sustainable products reduce their purchase quantities as a response to price hikes. Such a response to price increases is akin to loyal consumers trying to adjust to price hikes, hence the reported large price elasticity for sustainable products observed in Table 3 on marketing indicators from the loyalty cards analysis (see, Bezawada and Pauwels, (2013).

It is worth noting that attitude-behaviour gap has been conceived due to the lack of consistency between the relatively smaller market share of sustainable product industry and the unanimous positive association found between consumer attitude and behaviour towards sustainable products (Chatzidakis et al., 2004, Chatzidakis et al., 2007). Follow up studies since Boulstridge and Carrigan (2000) who coined the phrase attitude-behaviour gap, have attempted to explain the gap by applying some social psychology concepts that underpins non-conformity to social standards (Chatzidakis et al., 2007, Gruber and Schlegelmilch, 2014). Social psychology thoughts such as social desirability bias (Auger and Devinney, 2007, Carrigan and Attalla, 2001), shift from perceived to actual behavioural control (Carrington et al., 2010), and neutralisation techniques (Chatzidakis et al., 2007, Gruber and Schlegelmilch, 2014) have received some research attention. In particular, Carrington et al., (2010) contended that social desirability effects and other methodological approaches do not fully explain why sustainable market is still relatively small despite the greater awareness and consistently positive attitudes towards sustainable these products.

The results of this study reinforce the positions taken by Carrington et al., (2010) on one hand and Kaiser et al., (2010) that relied on Campbell's paradigm to suggest a shift of emphasis to address the market share paradox that does not commensurate with the progress made by the sustainable industry. The findings of the study support Campbell's paradigm as amplified by Kaiser et al., (2010) that attitude conceptualisation ought to cover a behavioural difficulty consideration. Therefore, a more objective measurement of consumer behaviours at best ought to be based on actual behaviour and not on claimed or reported behaviour that has given credence to exaggerated favourable sustainability perception that has driven the attitude-behaviour narrative.

6. CONCLUSIONS

At such a critical period when sustainability has provided a common platform for businesses and consumers to have a common goal to work towards, this paper provides the needed theoretical and empirical insight into deciphering the paradox behind the progress made by the sustainable food industry yet constituting a relatively small market share. This is achieved by drawing on Campbell's paradigm of accounting for behavioural difficulty as an alternative conceptual framework to examine systematically objective data based on actual behaviour dataset on 1.8 million loyalty card customers and till receipt collection of supermarket shopper purchase expenditure for sustainable food products. Contemporary sustainable food marketing research have sort to use various consumer behaviour models as a conceptual framework to investigate

consumer purchase behaviour towards sustainable food products. This area of research follows on from the increase consumer awareness towards sustainable products and a shift towards sustainable business development.

Despite the overwhelming positive attitude towards sustainable products, its market share has remained relatively small. The extant literature has attempted to explain this paradox with the assertion that there is the positive consumer attitude towards sustainable products that rarely translates into actual behaviour; thus, the term attitude - behaviour gap. The paper uses an alternative conceptual framework (Campbell's paradigm) that accounts for behavioural difficulty to examine sustainable food purchase behaviour; specifically, the apple market in the UK. The analysis has shown that factoring actual behavioural difficulty exemplars (past purchase, price, product availability and sustainable product variety) possess an inhibiting and promotion effect on sustainable food purchase behaviour. Consequently, our study validates the Campbell's paradigm theory since we were able to establish using 1.8 million of actual purchase behaviour data that indeed, purchase inhibitors such as premium pricing, product availability and variety is what causes the so-called gap between claimed purchase behaviour and actual purchase behaviour. Research-wise, we therefore suggests that efforts at closing attitude behaviour gap should move away from consumer perceptions, which has persisted in the literature to studies that seek to understand how the actual behavioural inhibitors, such as the ones we identified in this study can be overcome.

Further, this paper provides a vital insight that leads to the suggestion that the prevailing relatively smaller market share of the sustainable industry despite recent progress made is more realistic than envisaged. Indeed, the findings of the study does not support the existence of an overwhelming favourable general attitude when it is inferred from attitude-relevant behaviour. To this end, this paper argues that attitude-behaviour gap is rather an exaggerated phenomenon because of the overreliance on claimed/report data to understand sustainable food purchase behaviour. The status quo when it comes to marketing communication by managers tasks with promoting sustainable products is to assume mainstream communication strategies, which are based on promoting a wider appeal. However, these mainstream communication strategies without recourse to behavioural inhibitors may not translate into actual purchasing behaviour. In terms implications for practice, we therefore suggest that when managers promote sustainable products, they should pre-empt consumers about the need for them to individually overcome their behavioural inhibitors so that they can take advantage of the full value to be gained from consuming sustainable products.

In addressing the research questions, we were able to resolve that the paradox surrounding relatively small market of the sustainable industry despite the significant progress is not attributable

to attitude-behaviour gap. Rather the 'gap' is predicated on an exaggerated general favourable attitude that informed the couching of the term attitude-behaviour gap due the common association of social desirability effect with claimed or reported data in sustainable product attitudes, purchase intention and consumption. The results of the analyses have shown that behavioural difficulty exemplars like price, past purchase and product availability are critical factors that impinge on the success of the sustainable food product market. Gauging the degree of influence of the respective purchase inhibitors and promoters from the results leads to a typology of factors that impact on sustainable food purchase behaviour to various degrees.

The established typology categorising purchase inhibitors/promoters in terms of degree of influence on sustainable purchase behaviour have implications for the sustainable product industry researchers and practitioners. Further research attention to examine typology of purchase inhibitors/promoters in the context of other sustainable food products will provide further insight into the extent to which this observed trend is widespread and generalizable. The typology offers sustainable food product practitioners a basis for prioritised and targeted interventions to promote acceptability and improved purchase of sustainable food products by retailers and consumers respectively.

The confirmation of the four key factors objectively measured to influence sustainable food purchase underlines the importance of this subject to managers tasked with the promotion of sustainable food products. Of special interest is the constant negative impact of premium price on sustainable food purchase. This mean that some effort needs to be directed towards either identifying committed sustainable food shopper segment that is willing to pay the premium price and serve them better or engage stakeholders (Tukker et al., 2009) to make sustainable food products accessible and affordable.

In a broader context beyond the food industry, this research recommends a stakeholder approach where governmental policy interventions will be exploited to promote sustainable production and purchase through legislation and support to convert conventional production into sustainable products to increase access and at the same bring down prices across board. Such an approach pursued as a long-term strategy will be beneficial to governments in terms of reduction in health and environmental budgets as a result of promoting healthy living and environmental sustainability. Such a policy leadership by governments will encourage food industry players to invest more in sustainable food production and marketing. Although our study was within the context of the apple market in the UK, it is plausible that the research finding can have similar implications for sustainable products in general. However, further research is required in other

sustainable products sectors and market segments, and research on ethical services and other non-traditional products.

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